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ABSTRACT

This paper reprints the Australian report to UNISIST, the World Science Information System, whose objective is the development of national, regional, and international scientific, technological, industrial, and agricultural information policies, infrastructures, and services. It represents a full statement of the National Library's services and roles relating to UNISIST, which include: (1) designation as the Australian focal point for UNISIST; (2) appointment of a scientific and technological services enquiry committee examining the problems of dissemination and access; (3) appointment of advisory committees to help identify nationwide needs and encourage voluntary cooperation between all elements in the national library-based information system; (4) designation of over $1 million to undertake feasibility studies for the establishment of ALBIS (Australian Library-Based Information System); and (5) issuance of further specialized reports on the need for library and information services. UNISIST and all other operational activities of the National Library receive advice from an advisory committee that links government and non-government bodies and ensures that national services respond to national needs. Services offered in fulfillment of nationwide needs include access to overseas data bases, cooperation in the development of library science within Australia, and regional library cooperation. (Author/MBR)

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PREFACE

by Dr G. Chandler, Director-General, National Library of Australia

This paper was prepared in the course of Australia's participation in the First UNISIST Meeting of Experts on Regional Information Policy and Planning in Southeast Asia, which was organised by Unesco in co-operation with the Indonesian Government. The meeting, held in Bali on 12-15 July 1977, was one organised within the framework of the UNISIST Intergovernmental Programme as approved by the 19th Unesco General Conference.

One of the main objectives of the UNISIST Programme is the development of national, regional and international scientific, technological, industrial and agricultural information policies, infrastructures and services. A number of meetings has been held, notably in the South and Central Asian and Arab regions to explore the feasibility and desirability of the development of regional co-operation at a technical level. The Bali meeting called together participants from a number of Southeast Asian countries to discuss the basis of a comparative policy and management review of main problem areas, trends and relationships in the field of scientific, technological and industrial information. Australia's representatives were Mr B. Yates, Assistant Director-General, Science and Technology at the National Library of Australia, which has acted as the National Focal Point for UNISIST activities within Australia since 1974, and Mr C. Garrow, Manager, Information Service at the Commonwealth Scientific and Industrial Research Organisation.

Participants from each country were requested to present to the meeting a country report of approximately 3,000-5,000 words, briefly summarising the trends and developments of scientific and technological information activities in their respective countries. This publication reprints the Australian report which was prepared after consultation with the chairman of the Australian National Commission for Unesco and persons nominated by it and drawn from the CSIRO and the Social Sciences. Although the report is arranged to answer questions discussed at the UNISIST meeting, it does represent a full statement of many aspects of the National Library's services and role in a time of rapid change. It is therefore considered to be of sufficient interest to Australian librarians and others to warrant distribution as a resource sharing network publication in the framework of UNISIST, NATIS, ALBIS and the UNESCO General Information Programme. The report has been shortened and amended to be suitable for publication.

PROBLEM ANALYSIS AND NATIONAL POLICY

The OECD Examiners' Report on Science and Technology in Australia points out the unique characteristics of Australia as a technologically developed country isolated in the Southern Hemisphere, distant not only from the most important markets of the world, but also from major centres of learning and research. Australia is in fact a continent in itself, but is populated by a mere 14 million inhabitants, dominantly concentrated in the Southern Eastern and South Western rims. The great distances which separate its centres of population have imposed many constraints on the development of the country and have, reinforced by historical factors, favoured the creation of a federal system of government with a strong sense of identity in the constituent States. As far as research and development are concerned, the Federal Government is exclusively responsible for defence science and technology, while the civil research effort is divided between it and the States.

The OECD Examiners welcomed the Scientific and Technological Information Services Enquiry Committee (STISEC) Report whose findings are set out in Appendix 1 and hoped (Appendix 2) that the recommendations of the STISEC report would be implemented.

Scientific and technical information developments have taken place, until fairly recently, mainly through the library network of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and through the Universities and Royal Societies. Since its foundation in 1926 CSIRO has had statutory responsibility in the dissemination of scientific information and in scientific publication. Developments in State and university libraries, CSIRO and the National Library of Australia, have provided a decentralised network of library collections in all fields of knowledge. Bibliographical activities are focussed in the National Library, with advice from the Australian Advisory Council on Bibliographical Services (AACOBS). In a situation where the Australian economy was moving from predominantly agricultural to include a very substantial industrial component it was appreciated in the early part of this decade that the access to STI provided by CSIRO, which was thought to have its main pre-occupations in serving its own scientists, would be inadequate in the future. The National Library therefore took the initiative to call a Scientific and Technological Information Services Enquiry Committee (STISEC) to examine these problems. Members of the Committee were drawn from CSIRO, Federal Departments, Industry, Universities and Colleges and the National Library Council. The Secretariat comprised of members of CSIRO, Industry, Australian National University and the National Library of Australia. Briefly, its findings were needs for:

- improved access to information;
- better use of existing resources;

- more comprehensive holdings of current journals in science and technology;
- improved Union Catalogues, and improved use of them;
- better access to foreign standard specifications, technical report series, conference and seminar proceedings, foreign patent literature, and translations.

The STISEC report also emphasised that the needs of smaller firms for STI were inadequately met, or not met at all.

The STISEC report was submitted to Government in May 1973. Quick action was taken on it. On August 21st 1973 the Government announced through the budget speech that provision had been made to enable the National Library to begin implementation of the STISEC Report. Further provision has been made in subsequent years.

The National Library Act was amended in December 1973 in order to enlarge the Council to make it more representative of user needs, for it was clear that the effective development of library-based information services required the Council to be in close touch with all elements in the national library-based information system. The Act made provision also for the appointment of a Director-General with the powers of a Permanent Head in the Australian Public Service to act as executive member of the National Library Council. The Director-General's role (Appendix 3) is to provide high level policy advice to the Government and National Library Council and to lead, plan and manage a major developmental programme in National Library and information activities, services and networks involving increasing collaboration internationally, such activities to cover the whole spectrum of knowledge, science and technology, social sciences, humanities and the arts.

In 1974, the Australian National Commission for UNESCO recommended that the National Library be designated as the Australian focal point for UNISIST. As the National Library was already acting as a focal point for science and technology, the social sciences, and the humanities and the arts in order to execute its statutory duties and to implement the STISEC report, the Minister for Education and the Special Minister of State accepted this recommendation.

The Director-General's advice to the National Library Council and the Government was accepted and three national subject libraries have been established within the National Library, covering science and technology; social sciences, humanities and the arts. Their role is to identify nationwide needs for library-based information at all levels of the community, specify gaps in its provision, encourage appropriate organisations to help fill the gaps voluntarily, and ensure that the collections and services of the National Library make a maximum contribution to meet nation-wide needs at all levels.

In order to ensure that there is wide consultation with other persons drawn from a wide range of activities, five advisory committees have also been appointed with members drawn from Academies, State and University Libraries, Industry, CSIRO and other Commonwealth Departments and Authorities and the Advisory Committees are:

Advisory Committee in Science and Technology
Advisory Committee in the Social Sciences
Advisory Committee in the Humanities and the Arts
Advisory Committee for cooperation with State and Public Libraries
Communications Systems Working Group

The role of the Committees is to identify nationwide needs, advise on priorities and to encourage voluntary co-operation between all elements in the national library-based information system.

Additionally the National Library receives further advice from professional librarians through its funding of AACOBS and its five working parties: Bibliography; Information Resources; Research and Development; Systems and Communications; User Needs.

Representatives of all the major libraries and of all types of libraries serve on this body.

In order to delineate responsibility in the various networks which the Director-General was to develop, the Cabinet approved the expenditure within the National Library budget of over $1 million to undertake feasibility studies for the establishment of ALBIS (Australian Library-Based Information System).

Staffing and financial reductions made it impossible to implement the full range of studies. Studies have however continued within the framework of the reduced resources available for the national subject information libraries. Considerable progress has been achieved in developing many new services through resource sharing and the delineation of services to avoid duplication and to cut costs.

This progress will culminate eventually into a voluntary system covering all spheres of knowledge as envisaged in the STISEC Report.

The system in Australia must be voluntary because of the Federal State relationships in the Constitution. Australia is a federation of six States. Each State has its own Parliament and its own Premier. Certainly in matters regarding libraries and information services the Commonwealth Government has no authority to instruct States. Indeed in most matters it is the policy of the Government to provide general financial assistance to the States and to leave to the States the allocation of those funds according to the priorities of each

particular State. Hence any national system must be voluntary.

The readiness of Federal, State, Industrial, Academic and other organisations to participate in a voluntary system is revealed in the National Library of Australia publication 'Development of Resource Sharing Networks: Interim report and surveys'.

The report is based on a large number of submissions from organisations and individuals of all kinds who were asked to indicate and comment on:

(a) the range of traditional and computer-based information services available in their fields;

(b) the ways in which these services should be developed to meet current and future needs for the next fifteen years;

(c) the extent to which organisations or individuals can help;

(i) by assisting in detailed surveys of national needs; or

(ii) by developing traditional and computer-based information services to meet those needs; or

(iii) by making these available to the public as a whole.

The report reviews the concept, need for and development and future of resource sharing networks and the submissions are grouped by tentative networks.

An objective of publishing the report was to encourage the continued discussions and planning for a national information system based on network development.

Priority networks had been identified by the Advisory Committees. These were General Science and Technology; Industry; Life Sciences; General Social Sciences; Education; Community Affairs; South and South East Asia, Shared Cataloguing (BIBDATA). In addition CSIRO is providing automated services in chemistry, physics, food science and technology, agricultural sciences, water resources, the Department of Productivity in engineering, metallurgy and NTIS reports; and the Atomic Energy Commission in nuclear science. Network Studies have been prepared and published for Life Sciences, Industry, National Shared Cataloguing System (BIBDATA), Computer-Based Information Services Available to the Public in Australia, Standards for Australian Computer-Based Services and the networks are in the course of implementation. Responsibilities are being delineated and computer-based services (some on-line) have evolved in all areas.

At a seminar in 1976 to consider the further development of resource sharing networks the Minister responsible for the National Library indicated that the government supported the concept of an information resource sharing system.

He also advised that a close look was required at the social/sciences, the humanities and the arts, as well as science and technology, because in all of these areas it seemed that resource sharing was essential.

He pointed out that with Australia's limited resources it was particularly important to keep abreast of developments at home and overseas in areas of priority interest and to disseminate the results in order that duplication of effort and expenditure is avoided. The government's major concern was with the economy and he described the current economic climate as one of restraint, for without a sound economic base it was not possible to provide the other advantages and facilities that might be desired. When the economy improved it would be much easier for the government to adopt and approve new and important projects.

Whilst the government was sympathetic to the overall concept of an information sharing system the Minister could not give any commitments or guarantees but encouraged the continuation of planning. In considering support for such a system the government would expect some detailed consideration of priorities and would be looking for value for money spent - value to the citizen, value to education, value to society and value to the style and growth of life of the country.

In recent months a number of further specialised reports have been issued on the need for library and information services. These are being considered by appropriate agencies in different contexts.

Resource sharing

The term resource sharing which was used by the Minister, and which was the theme of the seminar at which he spoke, is used to mean the voluntary co-operation and sharing of information resources by organisations willing to participate in developing services to the Australian community.

Within each resource sharing network there would be four elements for consultancy, referral, computer-based and traditional library services. Each of these would require public access points and focal points for nationwide services in State, public, industrial, academic, social welfare and other organisations.

Influences on Government Information Policy

As indicated by the Minister the Government's attitude towards resource sharing systems would be largely conditioned by national requirements arising from broad social and economic objectives and that such systems should reach the public as a whole.

This is not to say that the needs of specific groups of users would not be given full weight in assessing priorities.

The Government has made arrangements recently for the needs of specific groups of users to be considered in detail. These groups include industrial undertakings, departmental libraries, the handicapped and the general public.

In addition a national shared cataloguing system servicing all libraries and information services is under consideration.

Certainly opportunities offered by modern technological advances would be welcomed and acted upon if they could be shown to be in the national interest and provide real value for any expenditure involved.

STRUCTURES

UNISIST National Committee and national focal point

The Australian National Commission for UNESCO has made arrangements for advice on UNESCO's General Information Programme to be the responsibility of a small specific committee.

This committee is made up of a number of members of the Communications Committee of the Australian National Commission for UNESCO, which includes the Director-General of the National Library, or his representative, in order to ensure liaison with the Australian national focal point.

Advice on the operational activities of the National Library as the focal point for Australia's General Information Programme (including UNISIST) will continue to be the responsibility of the advisory committees appointed previously to consider the STISEC, UNISIST, NATIS and ALBIS programmes.

The wide representation of interests encompassed by the members of the Advisory Committees provides the mechanism which links governmental and non-governmental bodies and the means to ensure that national information services respond to national needs.

The National Library has subsequently been designated in 1977 as the UNISIST focal point for the social sciences and it can draw from the advice of its Advisory Committee in the Social Sciences.

Networks committees have been established in the fields of Life Sciences and Industry. They are committees made up of users and providers of information services in their particular areas. By such co-operation an on-line network has been developed in the Life Sciences, based on the MEDLARS data base, and current awareness services for industry development. A further network - AUSINET - has been developed and offers on-line services to all states, permitting access from the same terminal to a range of data bases. The policy activities of these network committees are reviewed by the Advisory Committees and policy guidelines suggested.

The principles adopted regarding the division of responsibility for operations between the government sector and the private sector is one based on the strength of resources available in a particular sector. If any sector has the predominent strength in a particular area then the responsibility for developing services is seen to rest in that sector. For example, the Australian Mineral Foundation took the initiative to develop information services in the field of geosciences with funding from the National Library to support thesaurus construction, and in collaboration with CSIRO. CSIRO has also been working with respresentatives of State Departments, on behalf of the Australian Standing Committee on Agriculture,

in the development of an information system on current Australian research in agricultural services.

Within the Life Sciences network the Department of Health and the University Biomedical Schools act as focal points for consultancy and referral services. The National Library acts as a focal point for referral services and for computer-based services with computer power provided by the Department of Health. The focal point for traditional library services is the National Library.

A different example of the delineation of responsibilities arises from the industry network, which comprises persons drawn from industry, industrial associations and federal departments willing to co-operate. ICI, the Department of Productivity, CSIRO, and other organisations are focal points for consultancy and knowhow services and for referral services. The National Library is also a focal point for referral services and for certain computer-based services. CSIRO and the Department of Productivity are focal points for other computer-based services. The National Library and CSIRO are focal points for traditional services.

Current awareness bulletins for industry are being published by the National Library, in co-operation with CSIRO and Department of Productivity, with input being from the data bases operated by CSIRO, Department of Productivity and the National Library.

Progress is being made in the delineation of responsibilities in the networks for the social sciences, education and public affairs and in the humanities and the arts, e.g. South-East Asia, Films, Maps, etc. Progress is also being made in the determination of responsibilities for systems networks which link technically the networks serving particular subject areas, and in the identification of the needs of access points in State and public libraries.

Co-ordination also exists through the Australian Advisory Committee on Bibliographical Services (AACOBS). AACOBS makes representations directly to Government and also to the National Library Council.

Established in 1956, AACOBS plays a significant part in the development of national bibliographical and information resources in Australia, representing as it does all types of libraries.

FINANCE

The only central budget for library purposes relating to nationwide needs is that of the National Library. Other agencies either directly or indirectly contribute part of their budget to information services, which they make available as far as possible to the public. The proportion of any agency's budget allocated to services to the public depends on that agency's assessment of its priorities in relation to the overall task of the agency.

Under its Act the National Library can contract with other organisations to undertake work on its behalf and can finance working parties for research. Financial provision for this purpose is made in the budget of the National Library but due to economic constraints this is very small.

Charges

There has been much discussion regarding the pricing and cost recovery of information services.

The Advisory Committees have unanimously recommended that decisions as to charges be left to the operating agencies to determine, in the light of their overall objectives and priorities.

Investigations were conducted by the National Library, as the UNISIST national focal point, on the desirability of charging for computer-based services to cover the costs of computer time, but not the costs of the tapes or staff.

Consultants were commissioned to prepare a report, which recommended that charges be limited to regular current awareness services, provided use was not inhibited and that retrospective searches be free.

An internal report of the National Library pointed out the strong opposition in Australia to charges which would limit freedom of access to information. This, like education, is widely considered to be a civic entitlement.

Analysis of the users of existing computer-based library information services revealed that most were assisting in meeting community needs.

The Australian government is pressing for greater cost recovery in all services offered to the public but so far there has been no government directive regarding a unified policy.

SERVICES

The National Library report 'Development of Resource Sharing Networks: Networks Study No. 4 : Computer-based information services available to the public in Australia, '(Appendix 4) lists those services and the agencies providing the services.

On-line access to data bases overseas is offered by the National Library and by CSIRO: a small but increasing number of (mainly industrial) users is accessing the Lockheed data bases directly by dial-up telephone links with California.

The data bases operated in Australia are those which meet major national needs and consideration of any additional data bases to be operated in Australia would have to meet this point.

Data bases in operation, which have been specifically created or are in course of creation for Australian information include the Australian National Bibliography, Australian Science Index, CSIRO Index, Scientific and Technical

Research Centres in Australia, Australian Earth Sciences Information System, Australian Public Affairs Information Service (APAIS), Scientific Serials in Australian Libraries (SSAL), Serials in Australian Libraries Social Sciences and Humanities (SALSSAH), Australian Education Index, Union List of Higher Degree Thesis in Australian Libraries and Curriculum Development Index.

Work is also progressing to produce a data base containing information on Australian report literature.

The establishment of national data bases is conditioned by the availability of international data bases and the coverage of Australian information in these data bases. The needs of specific user groups in Australia is taken into account.

Some Australian agencies have the responsibility to provide Australian input to particular international data bases. CSIRO provide input to the agricultural data base AGRIS, to the water resource data base Selected Water Resources Abstracts and to Radiophysics Abstracts. The Australian geological literature is collected and indexed for the American Geological Institute's data base GEOREF by the Australian Mineral Foundation. The Australian Council for Educational Research provides input to the ERIC data base. National Library inputs data into the International Information System on Research in Documentation (ISORID) data base and also exchanges machine readable tapes of the Australian National Bibliography with similar services in the U.S.A., Canada and U.K.

CSIRO take particular care to ensure that the national scientific journals which they produce, in collaboration with the Australian Academy of Science, are indexed in international data bases.

There are no centres specifically designated as 'information analysis centres' in Australia though there are several centres of specific expertise in CSIRO, Universities and industry who do provide information somewhat in the same manner as an information analysis centre.

As indicated earlier, the resource sharing networks in the course of development aim at achieving maximum co-operation with State and public libraries as access points for the national information system and as contributors to it in appropriate areas.

State and public libraries are however not directly funded by the Commonwealth Government. Hence co-operation is completely voluntary.

INFRASTRUCTURE

Education and Training

Under the National Library Act the National Library has the statutory authority to promote co-operation in the development of library science. Hence it has been recognised as the National focal point for ISORID (International Information System on Research in Documentation).

Government is interested in plans to develop information services and adopted the STISEC report and approved of the National Library undertaking feasibility studies for (ALBIS) Australian Library-Based Information System. Further research within the framework of these plans is being published by the National Library. In all five resource sharing networks studies have been published: Life Sciences; Industry; National Shared Cataloguing System (BIBDATA); Computer-Based Information Services Available to the Public in Australia; Standards for Australian Computer-Based Services.

Other studies on education and training and in other areas of the UNISIST programme are in course of preparation.

Research and development relating to library and information work is undertaken by the National Library, CSIRO, and AACOBS and individual libraries, universities and colleges.

Three universities and twelve colleges of education offer degree or diploma courses. Ten colleges offer para professional courses. In addition, various organisations such as the National Library and CSIRO assist by providing training facilities for students of these courses.

The Library Association of Australia is the accrediting body for the above courses which are offered by many universities and colleges of education. A newly formed Information Science Section of the Library Association will be examining educational requirements and other aspects of professional qualifications and career development in this field.

REGIONAL CO-OPERATION

Australia is a member of the Asia and Oceania region of UNESCO for programme purposes and would expect to make a full contribution to activities in the region. In addition through the Australian Development Assistance Bureau the Australian government would consider approaches for assistance for priority needs identified by the government of other countries concerned.

In the National Library Act the Government has made the National Library responsible on behalf of the Commonwealth for fostering co-operation in library matters. Proposals to develop this co-operation are sympathetically considered within the framework of available resources.

The FID Commission for Asia and Oceania and the Association for Science Co-operation in Asia both have regional programmes in information development to which Australia contributes. Notably, a Committee on Information for Agriculture of FID/CAO is undertaking surveys and preparing directories which it is hoped will provide the basis for regional collaboration and resource sharing in the future.

APPENDIX 1

FINDINGS AND CONCLUSIONS OF THE SCIENTIFIC AND TECHNOLOGICAL INFORMATION SERVICES ENQUIRY COMMITTEE (STISEC), 1973

1. Australia lacks a national information policy and in particular a science and technology information (STI) policy. The Committee concludes that there is an urgent need for the formulation of a national information policy.

2. There is no strong central authority to act as a focus of STI activities. The Committee concludes that a single strong authority is required to ensure both national and international cooperation and coordination of STI services.

3. There is a wide expression of need for improved STI services in Australia. Comparison of the Australian situation with that in other developed countries shows that Australia's services and expenditure are proportionately inferior. The Committee concludes that Australia must improve its STI services.

4. Most industrial companies or firms lack adequate library resources of their own. The Committee concludes that the needs of industry require special attention.

5. Although information is often urgently required, about one quarter of the users surveyed stated that they had no ready access to adequate library facilities. The Committee concludes that a national STI service is necessary to remedy this deficiency.

6. Foreign language literature which might otherwise be used to advantage is often not consulted because of the difficulty in obtaining translations. The Committee concludes that a national translations centre is needed.

7. Patents, standard specifications, technical reports, dissertations and conference proceedings are not widely available or used. The Committee concludes that special attention should be given to these serious deficiences.

8. The basic indexes, abstracts and other conventional guides to STI are inadequately provided. The Committee concludes that attention should be given to this crucial defect.

9. Computerised selective dissemination of information (SDI) services, current awareness bulletins and retrospective search facilities are not readily available to the great majority of potential users. The Committee concludes that the lack of such facilities is a real impediment to the development of Australian industry, and should be remedied.

10. Many enquirers could be best served by consultation with an expert. The Committee concludes that the existing referral services need augmenting.

11. Although the inter-library lending system in Australia represents a major cooperative effort, there are long delays in obtaining wanted material. The Committee concludes that great improvements are required to guarantee fast document supply.

12. Three-quarters of the users of STI services have had no formal training in the use of facilities such as basic indexes and computerised information services, and the majority would welcome such training. The Committee concludes that there is both need and opportunity to introduce widespread educational services.

13. There is a lack of standardisation in library practices and statistics. The Committee concludes that advantages in coordination and cooperation would follow from encouragement towards standardisation by a central authority.

14. There is no single comprehensive collection of STI material in Australia that can serve adequately as a national lending library of scientific and technological literature. The Committee concludes that a central authority is necessary to foster the most effective use of existing collections and to establish a national document collection.

15. There are in Australia at present a number of good basic collections of scientific and technological literature, some existing information location aids and some groups with valuable experience of computerised information retrieval systems. The Committee concludes that these existing collections, services and activities, if properly coordinated, would help Australia to introduce promptly an effective national scientific and technological information system.

APPENDIX 2

OECD EXAMINERS' REPORT ON SCIENCE AND TECHNOLOGY IN AUSTRALIA, 1974

CHAPTER VI: SCIENTIFIC AND TECHNICAL INFORMATION FOR INDUSTRY

As we have already stressed, an industrially progressive country will have a healthy mix of technological innovation based on its own research and inventiveness, together with advanced contributions purchased from abroad. In order to exploit not only foreign technology to the full, but also to develop within the country the most relevant and advanced scientific ideas, wherever they may appear, it must have achieved a high degree of scientific awareness and possess suitable research and development skills. Otherwise it may select the second best or be too slow in bringing new innovations to production. We are convinced that Australia has these capacitities, but it is less sure that the communication system is adequately effective to ensure that industrial firms are sufficiently quickly informed of what are the new developments particularly significant to them. There seems to be a strong case for Australia, with its geographical isolation, to develop a national network of technical information services in which not only government agencies and research bodies participate, but also advanced industrial firms which, as in some other countries, can contribute thus in raising the general technical level of industry. Furthermore, such a network should include not only information from the natural sciences and engineering, but also from the economic and behavioural sciences, commercial information, statistical data, etc. since so many elements have to be considered in making decisions relating to even minor innovations.

Some individual scientific institutions in Australia, and notably the CSIRO network of libraries and information services, appear to cater well for the needs of their research scientists. This is however much less the case for workers in independent institutions, and for industrial users. The recent survey of the Scientific and Technological Information Services Enquiry Committee (STISEC) quantified the inadequacy of the present situation For example, they indicated that 98% of scientists and technologists working in Australian industry do not make use of or have access to technical information services.

The recent STISEC report on these matters is thus to be welcomed and it is hoped that its recommendations for the creation of a national scientific and technological information service will be implemented. The scope of its coverage should be widened to include the types of information just mentioned. Such a body should be responsible for the creation of an effective information network for the country, the development of coherent policy and of arrangements for linking the national to the international system. It should also be concerned with the related task of developing computerised data banks. It is important also that such an authority should be empowered to initiate research on information needs and provision, of an operational research character and to act in cooperation with other bodies, for example, the post office research department concerning advanced concepts of electronic information such as that of "the wired city".

It must be recognised, however, especially in relation to the needs of industry, that documentary information, embodying the results of recent research, is only one aspect of the information problem. A great proportion of the information needs of the user, especially in the small firms, is for know-how and for detailed understanding of the best common practice of the industry in question. In agriculture, this is provided directly by the States, through extension services, but no corresponding facilities exist for the secondary and tertiary industries. Yet the small commercial firm is in no better position than the farmer to acquire such information. Consideration should therefore be given to the creation of field liaison services such as have been developed in Canada, the Netherlands and elsewhere, to help such firms to formulate their needs, obtain access to the relevant information, much of which can be obtained through the bigger and more technically advanced firms or from research associations. We are unable to suggest the most appropriate institutional basis for this in Australia. We would suggest, however, that to be really practical it should again be organised on a network basis, very close to those who are doing development work for the various sectors; we doubt if it is essentially a task for librarians. It should be noted that in some countries, such as the United Kingdom, research associations for particular sectors devote a high proportion of their activities to such work aimed at stimulating innovations and raising the level of good technical practice of the industry.

APPENDIX 3

ADVERTISEMENT FOR EXECUTIVE HEAD OF THE NATIONAL LIBRARY (1973)

The National Library under its act covers the full spectrum of knowledge (Social Sciences, Humanities, Arts, Science, Technology) and all forms of recorded information. Applications are invited from persons qualified to administer the organisation covering all these areas, and particularly to lead, plan and manage a major developmental programme in National Library and information activities services and networks involving increasing collaboration internationally.

The successful applicant will be required to provide high level policy and other advice to the National Library Council and the Government and as the Executive Head of the Organisation he will have the powers of a permanent head in the Australian Public Service.

He will be required to conduct the affairs of the organisation with full regard to economy and efficiency, to keep abreast of the development of new ideas, to maintain liaison with leaders in relevant bodies and similar institutions in Australia and abroad, and to bring forward proposals to meet the needs of the future.

An amendment to the National Library Act has been recently introduced into Parliament to provide for the Executive Head to be designated the Director-General (formerly National Librarian) and to be Executive Member of the Council.

Qualifications - The qualifications required of applicants are implied in the major tasks described. Demonstrated administrative ability, imagination, initiative, vigour and constructiveness of a high order are essential.

Given these qualifications, experience in the field of libraries and/or information science would be important but not essential. Qualifications and experience either in Science and Technology or in the Social Sciences and Humanities are appropriate.

National Library of Australia

DEVELOPMENT OF RESOURCE SHARING NETWORKS

In the framework of UNISIST (World Science Information System), NATIS (National Information Systems) and ALBIS (Australian Library Based Information System)

NETWORKS STUDY NO. 4

COMPUTER BASED INFORMATION SERVICES AVAILABLE TO THE PUBLIC IN AUSTRALIA

2ND EDITION

Canberra
National Library of Australia
June 1977

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INTRODUCTION

Background

The National Library has a responsibility to identify the library based information needs of the Australian community, to specify gaps, to encourage appropriate organisations to fill these gaps and to make the maximum contribution through its own extensive resources.

Following the report published in 1973 of the Scientific and Technological Information Services Enquiry Committee (STISEC), which concluded that the lack of computerised information services was a real impediment to the development of Australian industry, the availability of these services to the Australian community has increased dramatically. The National Library, Commonwealth Scientific and Industrial Research Organization, other Commonwealth agencies and departments and industrial organisations have been particularly active in this field; services are now available covering many aspects of science, technology and the social sciences. This publication, the first edition of which was published in October 1976, lists and describes the computer based information services available to the Australian community.

Subject List

The Subject List (Part I) contains information on 81 data bases, 26 of which are at present operated in Australia. The list is divided into broad subject categories with the most pertinent services shown under each category.

Organisations providing computer services in Australia

The data bases are either operated in Australia or accessible by telecommunication links to overseas data base operators. In either case, access to the data bases may be made through the institutions shown in the Subject List under "Availability". The contact points and addresses of these organisations are listed in Part II - Organisations Providing Computer Services in Australia. Further information on the data bases may also be obtained from these organisations.

Index to the Subject List

The Index (Part III) provides references to the item numbers in the Subject List for

- data base names
- data base abbreviations
- the printed publications corresponding to the data bases
- names of distributing agencies.

Direct access to data bases operated overseas

Any organisation with the necessary facilities can itself have direct access to many of the overseas data bases; the National Library will be pleased to provide advice and training in this. Most of the data bases listed are available through one or more of the following organisations.

Lockheed Information Systems
3251 Hanover Street
Palo Alto
CALIFORNIA. USA 94304

Marketing and Educational Services
Bibliographical Retrieval Services Inc.
P.O. Box 17005
Minneapolis
MINNESOTA. USA 55417

Systems Development Corporation
2500 Colorado Avenue
Santa Monica
CALIFORNIA. USA 90406

Information bulletins available from the National Library

In order to rectify another of the inadequacies in the provision of information services in Australia identified by STISEC, the National Library has pioneered the introduction of a wide range of current awareness bulletins. Many of these information bulletins are based on data bases operated by the Departments of Defence and Productivity, the Australian Atomic Energy Commission and the Commonwealth Scientific and Industrial Research Organization and are produced with their active support. Details of these bulletins are given in Part IV.

NO.	BROAD SUBJECT CATEGORIES	BRIEF DESCRIPTION OF DATA BASE AND ITS ORIGIN	NAME	YEAR BEGUN	NO. OF REFS TO 1.1.77
N1	METALS incl. Metal Fabrication	Australian Defence Science and Technology Information System. Multi-disciplinary coverage of monographs and report literature primarily of interest to defence industry - Dept. of Defence	ADSATIS	1970	92000
2		World-wide coverage of engineering literature - Engineering Index Inc.	COMPENDEX	1970	550000
3		Definitive subject, title and author guide to virtually every American dissertation accepted at an acredited institution since 1861 - Xerox University Microfilms	COMPREHENSIVE DISSERTATION ABSTRACTS	1861	550000
4		Index to CSIRO research papers	CSIRO INDEX	1969	17800
5		World-wide metallurgical literature including Metals Abstracts Index and Alloys Index. An online thesaurus is provided - American Society of Metals	METADEX	1966	284000
6		Multi-disciplinary index to the literature of sciences and technology - Institute for Scientific Information (ISI)	SCISEARCH	1974	146600C
7		Technical literature on aluminium, ranging from ore processing to end use - American Society of Metals	WORLD ALUMINIUM ABSTRACTS (WAA)	1968	50200
01	PAPER, PRINTING, PACKAGING	World-wide coverage of engineering literature - Engineering Index Inc.	COMPENDEX	1970	550000
2		World-wide coverage of forestry and wood products, pulp & paper manufacture, printing & packaging, environmental & energy aspects - Institute of Paper Chemistry	IPC ABSTRACTS	1972	57500
3		Multi-disciplinary index to the literature of sciences and technology - Institute for Scientific Information (ISI)	SCISEARCH	1974	146600C
P1	PATENTS	U.S. and non-U.S. patents in the areas covered by APILIT - American Petroleum Institute	APIPAT	1964	95300

REPS PER ANNUM	AVAILABILITY						REMARKS	PRINTED PUBLICATION
	NLA		CSIRO		OTHER			
	SDI	RETRO	SDI	RETRO	SDI	RETRO		
12000					*	*	Available from Department Defence	
84000		*		*	*		Also available from Department of Productivity, A.C.T.	ENGINEERING INDEX
39600		*		*				DISSERTATION ABSTRACTS INTERNATIONAL. AMERICAN DOCTORAL DISSERTATIONS. COMPREHENSIVE DISSERTATION INDEX
1800			*	*				CSIRO INDEX
24000		*		*	*		Also available from Department of Productivity, A.C.T.	METALS ABSTRACTS ALLOYS INDEX
504000	*	*		*				SCIENCE CITATION INDEX
7200		*		*				WORLD ALUMINIUM ABSTRACTS
84000		*		*	*		Also available from Department of Productivity, A.C.T.	ENGINEERING INDEX
13200		July 1977		*	*	*	Also available from Australian Paper Manufacturers	IPC. ABSTRACT BULLETIN
504000	*	*		*				SCIENCE CITATION INDEX
8400		July 1977		*			Available to subscribers only See entry I2.	API PATENT ALERT

PART II

ORGANISATIONS PROVIDING COMPUTER SERVICES IN AUSTRALIA

NLA

Science and Technology -

Director Science
ANSTEL
National Library of Australia
CANBERRA. ACT 2600
Telephone: (062) 62 1525

or

Social Sciences -

Principal Librarian
Social Sciences Information Services
National Library of Australia
CANBERRA. ACT 2600
Telephone: (062) 62 1606

or

Australian MARC Record Service
National Library of Australia
CANBERRA. ACT 2600
Telephone: (062) 62 1216

CSIRO

Mr Clyde Garrow
Manager, Information Services, CSIRO
P.O. Box 89
EAST MELBOURNE. VIC 3002
Telephone: (03) 419 1333

or

Mrs Yvonne Esplin
Regional Information Officer, C/o CSIRO
175-183 Liverpool Street
SYDNEY. NSW 2000
Telephone: (02) 211 3400

Services offered by the following organisations are noted in the 'Other' column of the Subject List.

AAEC
Australian Atomic
Energy Commission

Mr W. Neale
Head Librarian
AAEC Research Establishment
Private Mail Bag
SUTHERLAND. NSW 2232
Telephone: (02) 531 3259

AMF
Australian Mineral
Foundation

Director
Australian Mineral Foundation
P.O. Box 97
GLENSIDE. SA 5065
Telephone: (08) 79 7821

APM Australian Paper Manufacturers Ltd.	Mr R.D. Williamson Superintendent Information Systems Australian Paper Manufacturers Ltd. G.P.O. Box 1643 N MELBOURNE. VIC 3001 Telephone: (03) 62 0171
ARRB Australian Road Research Board	Dr M.G. Lay Executive Director Australian Road Research Board Private Bag No. 4 P.O. Box 156 NUNAWADING. VIC 3131 Telephone: (03) 233 1211
DOD Department of Defence	Dr A. Taloni Assistant Secretary Defence Information Services Department of Defence Campbell Park Offices CANBERRA. ACT 2600 Telephone: (062) 66 2124
DOP Department of Productivity	Mr R.H. Rothwell Principal Librarian Department of Productivity Constitution Avenue CANBERRA. ACT 2600 Telephone: (062) 42 2530
ICI Australia Ltd.	Information Section, Research Department Newson Street ASCOT VALE. VIC 3032 Telephone: (03) 37 8881 or Research Department Beauchamp Road MATRAVILLE. NSW 2036 Telephone: (02) 666 6703 or Urgent Enquiries - Poisons Officers in State Sales Offices ICI Australia Ltd.

The following organisations noted in the 'Remarks' column of the Subject List have on-line access to the MEDLARS MEDLINE data base.

Librarian
Australian Department of Health
Central Library
WODEN. ACT 2606
Telephone: (062) 89 1555

Librarian
Australian National University
Life Sciences Library
CANBERRA. ACT 2601
Telephone: (062) 49 5111

Librarian
Monash University
Biomedical Library
CLAYTON. VIC 3168
Telephone: (03). 541 0811

Librarian
University of Adelaide
Medical Library
ADELAIDE. SA 5000
Telephone: (08) 223 4333

Librarian
University of Melbourne
Brownless Medical Library
PARKVILLE. VIC 3052
Telephone: (03) 345 1844

Librarian
University of New South Wales
Biomedical Library
KENSINGTON. NSW 2033
Telephone: (02) 663 0351

Librarian
University of Queensland
Biological Sciences Library
ST. LUCIA. QLD 4067
Telephone: (07) 370 0111

Librarian
University of Sydney
Medical Library
SYDNEY. NSW 2006
Telephone: (02) 692 1122

Librarian
University of Tasmania
Biomedical Library
HOBART. TAS 7000
Telephone: (002) 23 0561

Librarian
University of Western Australia
Medical Library of Western Australia
NEDLANDS. WA 6009
Telephone: (092) 80 3838

Overseas reports

R1	Communication
R2	Mathematical, general, atomic and molecular physics Fluid and structural mechanics
R3	Acoustics, optics and lasers
R4	Solid state and fluid physics
R5	High energy physics
R6	Neutron and nuclear physics
R7	Ocean technology and engineering
R8	Natural resources
R9	Electrotechnology
R10	Civil and structural engineering
R11	Aeronautics and aerodynamics
R12	Astronomy and astrophysics
R13	Atmospheric sciences
R14	Biology
R15	Radiobiology
R16	Medicine
R17	Computers, control and information
R18	Detection and countermeasures
R19	Earth sciences
R20	Environmental pollution control
R21	Administration
R22	Materials sciences A Metals and alloys
R23	Materials sciences B Other materials
R24	Mathematical sciences
R25	Non-destructive testing, Photography and recording devices
R26	Military sciences
R27	Missile technology, navigation and control
R28	General nuclear science and technology
R29	Fusion devices (thermonuclear)
R30	Nuclear instrumentation
R31	Radiation shielding, protection and safety
R32	Reactor engineering and nuclear power plants
R33	Ordnance
R34	Propulsion and fuels
R35	Space technology
R36	Transportation
R37	Building technology
R38	U.S. Government inventions for licensing
R39	Urban technology
R40	Behaviour and society
R41	Industrial and mechanical engineering
R42	Biomedical technology and engineering
R43	Business and economics
R44	Energy
R45	Agriculture and food
R46	General chemistry
R47	Analytical chemistry and isotopic analysis
R48	Photo, radiation, radio and nuclear chemistry
R49	Library and information science

Science and technology

S1	Abrasives, solvents and cleaners
S2	Aerosols
S3	Air pollution
S4	Aluminium
S5	Alternative energy
S6	Cement and concrete
S7	Ceramics and glass
S8	Engineering graphics and standards
S9	Environmental engineering: buildings
S10	Ergonomics
S11	Fibre optics
S12	Food additives
S13	Furnaces and foundries
S14	Insulating materials
S15	Lasers
S16	Lubrication and lubricants
S17	Noise pollution and control
S18	Novel sources of protein
S19	Polymers - fibres and films
S20	Powder metallurgy
S21	Protective coatings
S22	Rubber
S23	Ultrasonics
S24	Waste treatment
S25	Water pollution
T1	Composite materials
T2	Corrosion
T3	Energy and fuel
T4	Machine tools
T5	Materials handling
T6	Materials testing
T7	Packaging
T8	Plastics
T9	Integrated circuits
T10	Welding, bonding, riveting

PART IV

INFORMATION BULLETINS AVAILABLE FROM THE NATIONAL LIBRARY

The National Library issues a wide range of information bulletins each month which list selected recent articles, reports, books, patents and similar documents on specific topics. If you wish to receive any of these bulletins, please forward 5.00 for each bulletin title for 1 year's service. The Library is also able to provide copies of listed documents which you cannot obtain locally. Please address your orders and enquiries to:

National Library of Australia
CANBERRA. ACT 2600

INFORMATION BULLETINS ISSUED BY ANSTEL (AUSTRALIAN NATIONAL SCIENTIFIC AND TECHNOLOGICAL LIBRARY) ARE:

Biological sciences

B1	Animal behaviour
B2	Animal breeding
B3	Animal feeds
B4	Aquaculture
B5	Blowflies
B6	Circadian rhythm
B7	Coral reefs
B8	Eucalypts
B9	Evolution
B10	Fish diseases
B11	Forestry and forest products
B12	Genetics - microorganisms
B13	Heavy metal pollution
B14	Marine mammals
B15	Marsupial biology
B16	Pest control
B17	Plant breeding
B18	Population genetics
B19	Reptile biology
B20	Root pathogens
B21	Soil conservation
B22	Wheat biology

Medicine

M1	Alcoholism
M2	Arthritis and rheumatism
M3	Asthma
M4	Cancer chemotherapy
M5	Cancer detection and diagnosis
M6	Congenital birth defects and teratogens
M7	Diabetes
M8	Disorders of speech and hearing
M9	Drug addiction and abuse
M10	Embolism and stroke
M11	Fertility and sterility
M12	Headaches and migraine
M13	Hyperkinesis
M14	Hypertension
M15	Nutrition and malnutrition
M16	Oral contraceptives
M17	Reproductive endocrinology
M18	Suddent infant death syndrome
M19	Thyroid disorders
M20	Epilepsy
M21	Occupational health
M22	Allergies
M23	Venereal disease
M24	Preventive dentistry
M25	Public health dentistry
M26	Dental caries and deposits
M27	Dental materials and equipment
M28	Orthodontics
M29	Livestock (veterinary aspects)
M30	Household pets (veterinary aspects)
M31	Applied psychology
M32	Social psychology
M33	Psychotherapy
M34	Nursing education
M35	Nursing care

INFORMATION BULLETINS OFFERED BY ANSOL (AUSTRALIAN NATIONAL SOCIAL SCIENCES LIBRARY) ARE:

Communication and the media

SS1 The media

Criminology

SS2 Criminology and corrections

Economics and Business

SS3 Accounting
SS4 Agricultural economics
SS5 Assistance to industry
SS6 Employment and unemployment
SS7 Energy and resources
SS8 Industrial relations
SS9 Inflation
SS11 Marketing
SS12 Productivity and efficiency

Education

ER1 Academic achievement
ER2 Alternative education
ER3 Behavioural studies
ER4 Career education
ER5 Cognitive studies
ER6 Community involvement in education
ER7 Computers and education
ER8 Continuing education
ER9 Curriculum studies
ER10 Day care
ER11 Early childhood education
ER12 Educational administration and planning
ER13 Educational facilities
ER14 Educational philosophy and theory
ER15 Education psychology
ER16 Educational technology
ER17 Exceptional children
ER18 Language and linguistics
ER19 Learning difficulties
ER20 Libraries and information services
ER21 Migrant education
ER22 Physical education
ER23 Reading studies
ER24 Student evaluation
ER25 Teacher education
ER26 Teacher evaluation
ER27 Teaching methods

Labour and industrial relations

SS6 Employment and unemployment
SS8 Industrial relations
SS12 Productivity and efficiency
SS13 Quality of working life

Management and public administration

SS3 Accounting
SS6 Employment and unemployment
SS10 Management
SS14 Organisational development
SS12 Productivity and efficiency
SS13 Quality of working life

Psychology

ER3 Behavioural studies
ER5 Cognitive studies
ER15 Educational psychology

Social welfare

SS15 Housing
SS16 Leisure and recreation
ER28 Social welfare

Sociology

SS17 Future studies and forecasting
SS18 Violence and Terrorism

Urban and regional planning

SS19 Environmental issues
SS15 Housing
SS20 Urban studies

INFORMATION BULLETINS OFFERED BY ANHUL (AUSTRALIAN NATIONAL HUMANITIES AND ARTS LIBRARY) ARE:

Architecture, town planning and landscape design
Australian history and biography
Australian literature (creative and critical works)
Fine arts (plastic and graphic arts)